Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A server system comprising:

a high performance spinning-type hard drive for storing a first set of data; and

a power controlled spinning-type hard drive for storing a second set of data, wherein an entirety of the power controlled spinning-type hard drive is configured for lower power consumption as compared to the high performance spinning-type hard drive; and

a policy manager that assesses multiple metadata analysis of a data set to be stored into one of the high performance hard drive or the power controlled hard drive, the multiple metadata analysis including all of; (a) an analysis of usage rate metadata of the data set to be stored, (b) an analysis of content type metadata of the data set to be stored, and (c) an analysis of owner and consumer metadata of the data set to be stored, wherein the policy manager receives the multiple metadata analysis of (a), (b), and (c) and makes a determination whether the data set is to be stored in the high performance hard drive or in the low power hard drive, the determination based on rules to eliminate contention between the multiple metadata analysis.

wherein an entirety of the power controlled spinning-type hard drive is configured for lower power consumption as compared to the high performance spinning-type hard drive and the first set of data is distinguished from the second set of data by characteristics, the characteristics are determined by the server which accesses content policies to evaluate the data before determining whether the data is stored in the high performance hard drive or in the power controlled hard drive.

2. (Original) The server system of claim 1, wherein the power controlled spinning—type hard drive achieves a lower power consumption by spinning up the power controlled drive upon receipt of a service request and spinning down the power controlled drive after providing service.

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

3-5. (Cancelled)

6. (Currently Amended) The server system of claim 1, wherein the data set to be stored

is placed on the power controlled spinning-type hard drive after classification of the data into

one or more of the characteristics of a fully distinguished file name, file size, creator, owner,

consumer, groups, distribution lists, access control list detail, certificates, signature attributes,

protocols, content resolution, encoding technique, encryption technique, key properties,

internal subjects, keywords, content tags, assemblies, associations to other files, replication,

caching, directory and related database extensible properties.

7. (Currently Amended) The server system of claim 1, wherein the first set of data and

the second set of data set to be stored comprises comprise audio or video files.

8. (Cancelled)

9. (Original) The server system of claim 1, wherein the high performance drive spins

continuously.

10. (Currently Amended) The server system of claim 1, wherein a subset of the first set of

data set is moved to power controlled drive in accordance with a predetermined condition, the

data set moved after being stored in the high performance hard drive.

11. (Original) The server system of claim 10, wherein the predetermined condition is

based on at least one of the last access date of the subset of data, the current date, the number

of times the subset of data has been requested in a period of time, the data size, users of the

data, a file name, the data types, and internal content.

12. (Currently Amended) The server system of claim 1, wherein a subset of the second set

of data set to be stored is moved to the high performance drive in accordance with a

predetermined condition, the data set moved after being stored in the power controlled hard

drive.

Page 3 of 16

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

13. (Original) The server system of claim 12, wherein the predetermined condition is based on at least one of the last access date of the subset of data, the current date, and the number of times the subset of data has been requested in a period of time.

14. (Currently Amended) A method for managing data on a server, the method comprising:

receiving a data set to be stored, the data set to be stored into one of a high performance hard drive or a power controlled hard drive;

performing multiple metadata analysis of the data set, the multiple metadata analysis including all of; (a) an analysis of usage rate metadata of the data set to be stored, (b) an analysis of content type metadata of the data set to be stored, and (c) an analysis of owner and consumer metadata of the data set to be stored;

receiving the multiple metadata analysis of (a), (b), and (c) by a policy manager; and

determining, using the policy manager, whether the data set is to be stored in the high performance hard drive or in the low power hard drive, the determination based on rules to eliminate contention between the multiple metadata analysis.

classifying the data to be managed into a first set and a second set;

storing a first set of data on a high performance spinning hard drive associated with the server; and

storing a second set of data on a power controlled hard drive, wherein an entirety of the power controlled hard drive is configured for lower power consumption as compared to the high performance spinning hard drive and the first set of data is distinguished from the second set of data by at least one of characteristics of the data and characteristics of metadata, and wherein the characteristics are determined by the server which accesses content policies

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

to the data before determining whether the data is stored in the high performance hard drive or in the power controlled hard drive.

15. (Currently Amended) The method of claim 14, wherein the <u>step of performing</u> <u>multiple metadata analysis elassifying further comprises analyzing the data <u>set according to one or more of</u> the characteristics of a fully distinguished file name, <u>file size</u>, creator, owner, consumer, groups, distribution lists, access control list detail, certificates, signature attributes, protocols, content resolution, encoding technique, encryption technique, key properties, internal subjects, keywords, content tags, assemblies, associations to other files, replication, caching, directory and related database extensible properties.</u>

16. (Currently Amended) The method of claim 14, wherein the step of performing the analysis of usage rate metadata comprises: further comprising:

determining the first set of data and the second set of data a storage location for the data set by comparing the request rate of the data set to a predetermined threshold;

assigning data that has a request rate above the predetermined threshold to the first set of data high performance hard drive; and

assigning data that has a request rate below the predetermined threshold to the <u>power</u> controlled hard drive. second set of data.

17. (Currently Amended) The method of claim 14, wherein the step of performing the analysis of usage rate metadata comprises: further comprising:

determining the first set of data and the second set of data a storage location for the data set by comparing the last request date of data to a predetermined date;

assigning data that has a last request date after the predetermined date to the first set of data high performance hard drive; and

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

assigning data that has a last request date before the predetermined date to the <u>power</u> controlled hard drive. second set of data.

18. (Currently Amended) The method of claim 14, wherein the step of performing the analysis of usage rate metadata comprises: further comprising:

determining the first set of data and the second set of data a storage location for the data set by comparing the creation date of data to a predetermined date;

assigning data that has a creation date after the predetermined date to the first set of data high performance hard drive; and

assigning data that has a creation date before the predetermined date to the <u>power</u> controlled hard drive. second set of data.

- 19. (Currently Amended) The method of claim 14, wherein the first and second sets of data comprise data set comprises audio or video.
- 20. (Currently Amended) The method of claim 14, wherein the first and second sets of data comprise the data set comprises documents.
- 21. (Original) The method of claim 14, further comprising spinning the high performance drive continuously, and maintaining the power controlled drive in a reduced performance state unless actively accessing data stored thereon.
- 22. (Currently Amended) The method of claim 14, further comprising moving a subset of the first set of data set to the power controlled drive in accordance with a predetermined condition, the data set moved after being stored in the high performance hard drive.
- 23. (Original) The method of claim 22, wherein the predetermined condition is based on at least one of the last access date of the subset of data, the current date, and the number of times the subset of data has been requested in a period of time.

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

24. (Currently Amended) The method of claim 14, further comprising moving a subset of

the second set of data set to the high performance drive in accordance with a predetermined

condition.

25. (Original) The method of claim 24, wherein the predetermined condition is based on

at least one of the last access date of the subset of data, the current date, and the number of

times the subset of data has been requested in a period of time.

26. (Currently Amended) A computer-readable storage medium having computer-

executable instructions for performing a method of managing data on a server, the method

comprising:

receiving a data set to be stored, the data set to be stored into one of a high

performance hard drive or a power controlled hard drive;

performing multiple metadata analysis of the data set, the multiple metadata analysis

including all of; (a) an analysis of usage rate metadata of the data set to be stored, (b) an

analysis of content type metadata of the data set to be stored, and (c) an analysis of owner and

consumer metadata of the data set to be stored;

receiving the multiple metadata analysis of (a), (b), and (c) by a policy manager; and

determining, using the policy manager, whether the data set is to be stored in the high

performance hard drive or in the low power hard drive, the determination based on rules to

eliminate contention between the multiple metadata analysis.

classifying the data to be managed into a first set and a second set;

storing a first set of data on a high performance spinning hard drive associated with

the server; and

Page 7 of 16

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

storing a second set of data on a power controlled hard drive, wherein an entirety of the power controlled hard drive is configured for lower power consumption as compared to the high performance spinning hard drive; and wherein the first set of data is distinguished from the second set of data by at least one of characteristics of the data and characteristics of metadata, and wherein the characteristics are determined by the server which accesses content policies to evaluate the data before determining whether the data is stored in the high performance hard drive or in the power controlled hard drive.

- 27. (Currently Amended) The computer-readable medium of claim 26, wherein the step of <u>performing multiple metadata analysis elassifying further comprises analyzing the data set</u> according to one or more of the characteristics of a fully distinguished file name, <u>file size</u>, creator, owner, consumer, groups, distribution lists, access control list detail, certificates, signature attributes, protocols, content resolution, encoding technique, encryption technique, key properties, internal subjects, keywords, content tags, assemblies, associations to other files, replication, caching, directory and related database extensible properties.
- 28. (Original) The computer-readable medium of claim 26, further comprising the step of spinning the high performance drive continuously, and maintaining the power controlled drive in a reduced performance state unless actively accessing data stored thereon.
- 29. (Currently Amended) The computer-readable medium of claim 26, further comprising the step of moving a subset of the first set of data set to the power controlled drive in accordance with a predetermined condition, the data set moved after being stored in the high performance hard drive.
- 30. (Original) The computer-readable medium of claim 29, wherein the predetermined condition is based on at least one of the last access date of the subset of data, the current date, and the number of times the subset of data has been requested in a period of time.
- 31. (Currently Amended) The computer-readable medium of claim 26, further comprising the step of moving a subset of the second set of data set to the high performance drive in

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

accordance with a predetermined condition, the data set being moved after being stored in the power controlled hard drive.

32. (Original) The computer-readable medium of claim 31, wherein the predetermined condition is based on at least one of the last access date of the subset of data, the current date, and the number of times the subset of data has been requested in a period of time.

- 33. (Original) The system of claim 1, wherein a database is divided such that a first portion of the database, having a first set of attributes, is stored in the high performance hard drive, and a second portion of the database, having a second set of attributes, is stored in the power controlled hard drive.
- 34. (Previously Presented) The system of claim 33, wherein the first set of attributes comprises a first set of meta-directives and the second set of attributes comprises a second set of meta-directives.
- 35. (Original) The system of claim 1, wherein the high performance hard drive comprises one of a remote storage area network (SAN) device and a network attached storage (NAS) device, wherein power management directives control the storage of data across multiple storage devices.
- 36. (Original) The system of claim 1, wherein the power controlled hard drive comprises one of a remote storage area network (SAN) device and a network attached storage (NAS) device, wherein power management directives control the storage of data across multiple storage devices.
- 37. (Original) The system of claim 1, wherein the power controlled hard drive comprises one of a remote storage area network (SAN) device and a network attached storage (NAS) device, wherein power management directives are used to control power management events in storage devices.

Application No.: 10/823,918 **Office Action Dated:** May 4, 2007

38. (Original) The system of claim 1, wherein the power controlled hard drive is a redundant array of independent disks (RAID).

- 39. (Currently Amended) The system of claim 38, wherein the second set of data in the power controlled hard drive is distributed across the redundant array using a stripping algorithm.
- 40. (Original) The system of claim 39, wherein the stripping algorithm reduces the power up impact to a smaller set of drives upon data access operations.